
A New Species of *Hymenoxys* (Asteraceae, Helenieae, Tetraneuridinae) from Texas

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ABSTRACT. *Hymenoxys perpygmaea* W. C. Holmes, Singhurst & Mink (Asteraceae, Helenieae, Tetraneuridinae) is described as a new annual species. The species, which is ephemeral, is endemic to an alfisol prairie that contains mima mounds in Lamar County from northeastern Texas, U.S.A. It is similar to *H. texana* (J. M. Coult. & Rose) Cockerell, but is easily distinguished from that species by its diminutive rosette and fewer florets per capitulum.

Key words: Asteraceae, Helenieae, *Hymenoxys*, IUCN Red List, Tetraneuridinae, Texas, U.S.A.

Hymenoxys Cass. is a New World genus of approximately 25 species, 17 of which occur north of Mexico (Bierner, 2006). Two of the 17 species are annual, with one, *H. texana* (J. M. Coult. & Rose) Cockerell, being endemic to Texas (Cockerell, 1904; Mahler, 1983; Bridges, 1988). This latter species is of conservation concern, being listed as endangered (G2S2) by the United States Fish and Wildlife Service (Poole et al., 2007). Recent field study of the tall grass prairies of Lamar County in northeastern Texas has resulted in the discovery of another annual species of *Hymenoxys*, which is described below.

Hymenoxys perpygmaea W. C. Holmes, Singhurst & Mink, sp. nov. TYPE: U.S.A. Texas: Lamar Co., Gambill Goose Prairie Refuge, 7.2 mi. W of Paris (+33.69617, -95.660550), 4 May 2009, W. C. Holmes, J. R. Singhurst & J. N. Mink 14504 (holotype, BAYLU; isotype, MO). Figure 1.

Species nova *Hymenoxys texanae* (J. M. Coult. & Rose) Cockerell similis, sed ab ea rosula 1.3–2.4 cm in diametro (vs. 4–7+ cm) et flosculis disci in quoque capitulo 17 ad 32 (vs. 45 ad 75+) differt.

Plants slender, erect, ephemeral, 5–6.9 cm tall; taproots slender, light brown, ca. 1.7 mm diam.; stems terete, glabrous, 0.3–0.7 mm diam., unbranched and leafless for the first 2–3 cm, divided distally into 1 or 2(4) head-bearing branches; rosettes 1.3–2.4 cm diam. Leaves 3 to 6, elliptic to obovate, 6–12 × 3–4 mm, margins entire, surfaces glabrous, glandular, midvein whitish, conspicuous in the proximal 1/2 of blade, apices rounded, rosettes turning yellow and withering prior to or at time of flowering, leaving an enlarged node 1–2 mm diam., often with 1–3 mm leaf remnants persisting, cauline leaves alternate, 4 to 8 per branch, linear, 6.4–10.5 × 0.5–2 mm, sessile, margins mostly entire, the midstem leaves occasionally irregularly toothed, surfaces glabrous, glandular, apices obtuse. Peduncles quadrangular, obscurely winged to ridged, surfaces sparsely crisp-puberulent, capitula terminal, 1 or 2(4), semi-campanulate, 4.3–7.9 × 3.1–5.4 mm; phyllaries in 2 series; outer 8, ovate-oblong, ca. 5 mm, glabrous, bases slightly connate, gibbous, margins entire, the distal 1/2 rather scabrous, apex acute; inner phyllaries 8, similar to outer, ca. 0.5 mm longer, apices rounded; receptacles hemispheric, ovoid, smooth, epaleate. Ray florets yellow, not exceeding phyllaries, ca. 7, pistillate, fertile, corollas ovate, ca. 2.8 mm, lobes (teeth) 3 or 4, rounded (ovate), ca. 0.4 mm. Disc florets yellow, bisexual, fertile, 17 to 32, glabrous, tube ca. 1.1 mm, throat cylindrical, ca. 1.4 mm, teeth deltate, ca. 0.2 mm; styles and style branches ca. 2.2 mm, undivided portion ca. 1.65 mm, style appendages ca. 0.55 mm; anthers ca. 0.8 mm, filaments ca. 0.3 mm, appendages deltate. Cypselae obpyramidal, ca. 2 × 0.6 mm, densely velutinous; pappi possessing awned scales, the scales ovate, ca. 1 × 0.7 mm, margins entire,

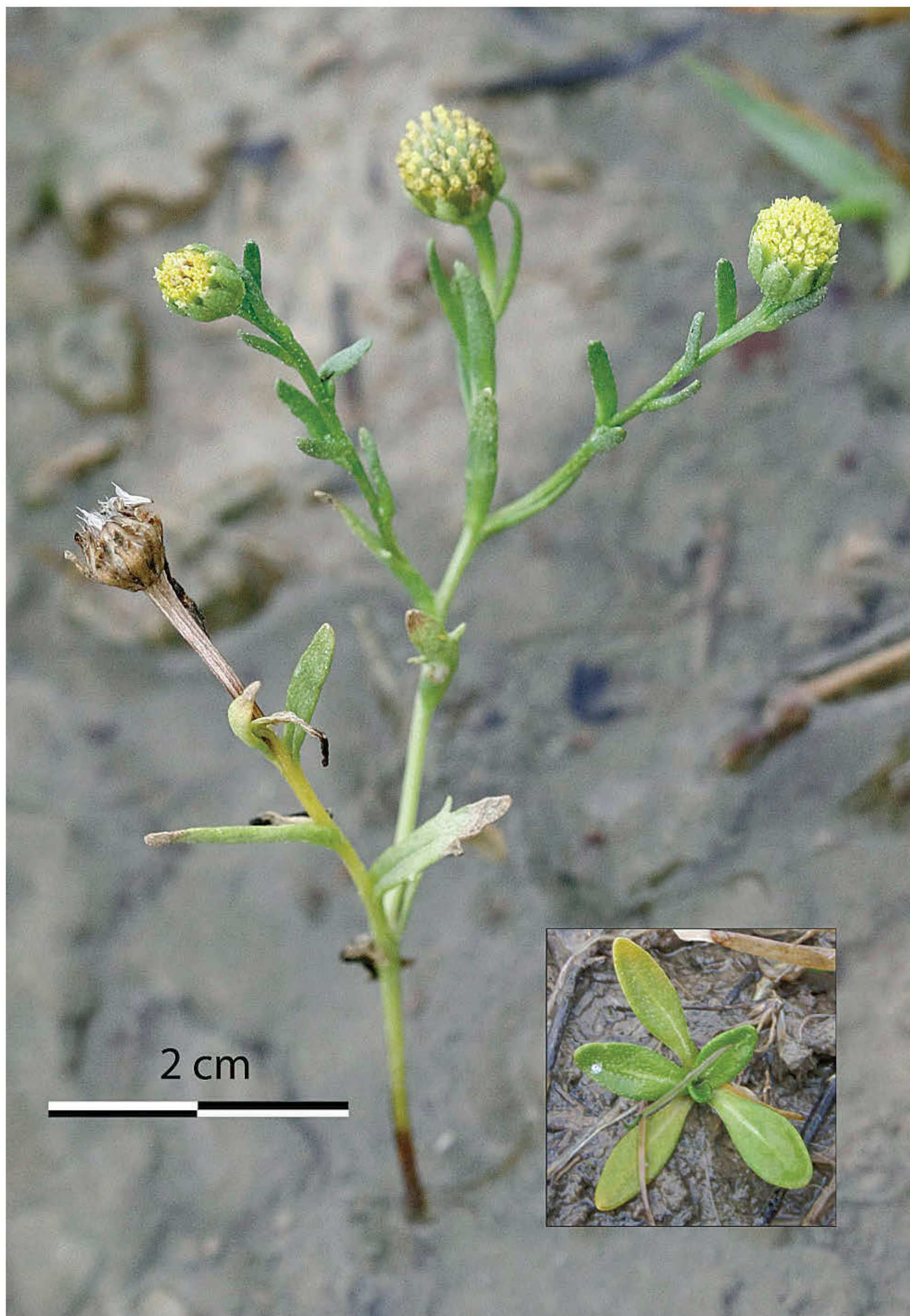


Figure 1. Photograph of *Hymenoxys perpygmaea* W. C. Holmes, Singhurst & Mink taken at the type location (scale applies to both the larger and inset images). Habit and capitula of the holotype *Holmes, Singhurst & Mink 14504* (BAYLU). Photo by Darrell Vodopich, 4 May 2009. The inset image shows the basal leaves collected as the paratype *Singhurst 18134* (BAYLU). Photo by J. R. Singhurst, 25 February 2010.

awns ca. 1.5 mm, margins scabrid. Pollen spherical, ca. 33 μm , surfaces spinose.

Distribution and habitat. *Hymenoxys perpygmaea* is known to occur only in saline slick depressions on alfisols in the Gambill Goose Prairie Refuge, near Paris in Lamar County, Texas. This area, which is characterized by the presence of mima mounds, is located in the northeastern part of the Blackland Prairie vegetation region of Texas. For further descriptive analysis of the refuge habitat, see Mink et al. (2010).

IUCN Red List category. *Hymenoxys perpygmaea* is currently known from only one location and is considered (by the authors) to be Critically Endangered (CR B2a) (IUCN, 2001). The population is comprised of three subpopulations concentrated in discrete saline slick depressions. The area is estimated to be less than 0.1 km² and the total number of observed individuals less than 300. The refuge is owned and maintained by the city of Paris and is considered reasonably secure from major disturbance. It is maintained as recreational land with management practices mainly limited to periodic haying. However, potential hazards to the population are the use of all-terrain vehicles (ATVs) on the refuge and the rooting and wallowing of feral hogs (*Sus scrofa*).

Phenology. *Hymenoxys perpygmaea* was observed to flower April to May. The exact time of flowering during this period appears dependent on water availability based on seasonal precipitation.

Etymology. The species epithet *perpygmaea* alludes to the very diminutive nature of the plants as compared to other members of the genus. In anticipation of the new species being assigned a common name, we recommend that it be called pygmy prairie dawn.

Discussion. Morphologically, *Hymenoxys perpygmaea* appears nearest to *H. texana*, a species currently known from Harris and Ft. Bend counties (near Houston, ca. 500 km south of Lamar County) and Trinity County, which is approximately 280 km south of the type locale in Lamar County. *Hymenoxys texana* is well-marked by its larger and persistent basal rosette. Field studies have shown that *H. texana* rosettes begin appearing in late November and early December, attain a width of 4–7+ cm by the time of flowering (unpublished data), and persist until summer. The growth form is predominantly spreading, with one to 30 capitula, each with 40 to 75+ disc

florets, produced per plant. Flowering may be initiated as early as mid- to late February and persists into the first part of April. Midstem leaves are most often lobed. *Hymenoxys perpygmaea* has a smaller rosette, not more than 2.4 cm diam., which appears in mid-February and is short-lived. Prior to or at the time of flowering, the rosettes turn yellow and begin withering away. The species appears to be ephemeral, apparently beginning growth in February and flowering April to May. Limited observations during 2009 and 2010 indicated that the exact time of flowering may be directly related to water availability. By mid- to late May, the plants have largely disappeared. This growth habit appears to be an adaptation for existence in the saline slicks, where by late May only desiccated remnant plants are available; lack of water (drought) is apparently a limiting factor. Each plant usually has one capitulum, but occasionally a plant may have two to four and each capitulum has 17 to 32 disc florets. Margins of leaves of the plant are entire, while the plants are strictly erect. That the species has only now been discovered seems related to its ephemeral nature, restricted distribution, and scarcity of appropriate habitats (i.e., saline slicks).

The Gambill Goose Prairie Refuge is classified as an alfisol *Sporobolus silveanus* (Swallen)–*Carex meadii* (Dewey) Herbaceous Prairie Association with mima mounds (NatureServe, 2010). The characteristic species of the slicks are ephemerals, short-lived annuals, or drought-tolerant specialists. Other than *Hymenoxys perpygmaea*, characteristic species are *Sporobolus pyramidatus* (Lam.) Hitchc., *Setaria parviflora* (Poir.) Kerguelén, *Aira elegans* Willd. ex Kunth (Poaceae), *Ptilimnium capillaceum* (Michx.) Raf. (Apiaceae), *Iva angustifolia* Nutt. ex DC., *Coreopsis basalis* (A. Dietr.) S. F. Blake, *Euthamia gymnospermoides* Greene, *Krigia occidentalis* Nutt. (Asteraceae), *Plantago hybrida* Bart. (Plantaginaceae), *Oenothera linifolia* Nutt. (Onagraceae), *PheMERANTHUS parviflorus* (Nutt.) Kiger (Portulacaceae), *Hedeoma hispida* Pursh, *Prunella vulgaris* L., *Pycnanthemum tenuifolium* Schrad. (Lamiaceae), *Fimbristylis puberula* (Michx.) Vahl (Cyperaceae), *Sabatia campestris* Nutt. (Gentianaceae), *Neptunia lutea* (Leavenw.) Benth. (Fabaceae), *Sisyrinchium angustifolium* Mill. (Iridaceae), *Nothoscordum bivalve* (L.) Britton, and *Allium drummondii* Regel (Liliaceae).

Singhurst 18134, a paratype cited below, is sterile and was collected for elucidating the structure of the basal leaves. As mentioned, basal leaves are never present during flowering.

Paratypes. U.S.A. **Texas:** Lamar Co., Gambill Goose Prairie Refuge of the city of Paris, 21 May 2009, *W. C. Holmes, R. S. Baldrige & J. N. Mink 14572* (BAYLU); same location, 25 Feb. 2010, *J. R. Singhurst 18134* (BAYLU).

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